## 4. PROJECT SUMMARY

**County:** LASSEN

**Applicant**: UNIVERSITY OF CALIFORNIA DAVIS

**Project Title:** RESTORING RANGELAND WATERSHEDS AND FISHERIES: PINE CREEK WATERSHED AND EAGLE LAKE RAINBOW TROUT

### PROJECT GOAL

The goal of this project is to determine the combined success of 20 years of restoration projects in the upper Pine Creek watershed (Lassen County) in returning the creek to state in which it supports abundant trout and native fishes. In particular, we will determine the suitability of restored habitats for use by the rare Eagle Lake Rainbow Trout, as part of an effort to restore naturally spawning populations.

### PROJECT SCOPE

Pine Creek is home to one of the most successful Coordinated Resource Management Process (CRMP) projects in the Sierra Nevada (Pustejovsky 2007). Since 1987, the creek, including the upper watershed, has been the focus of intensive restoration efforts by the CRMP. The motivation for the work has been largely to restore spawning and rearing habitat for Eagle Lake Rainbow Trout (ELRT, *Oncorhynchus mykiss aquilarum*). Over the past 100+ years modifications of Pine Creek watershed decoupled the ELRT from its stream habitat. Since 1950 the species and its fishery have been maintained by artificial spawning, after fish are trapped at the mouth of Pine Creek. Offspring are reared in hatcheries and released into Eagle Lake, a life cycle which is quite likely not sustainable indefinitely. The creek is special for other reasons as well. (1) It is the only large tributary to Eagle Lake and its flows are crucial for maintaining lake levels and chemistry. (2) It is bordered for much of its length by large meadows for which restoration is of major interest throughout the Sierra Nevada. (3) The watershed has high value for grazing, timber, and recreation, which increases the importance and visibility of the restoration efforts. (4) The stream and its watershed support a high diversity of plants, invertebrates, fish, and wildlife, an increasingly important aspect for their management. (5) Most of the watershed in on public land, potentially enabling greater flexibility in management than for watersheds with mixed ownership. Thus Pine Creek serves as a demonstration project with many benefits to the region. However, the effects of the restoration efforts have not been formally evaluated.

We propose the following scope of work, focused on approximately 8.5 miles of perennial stream reaches upstream of the railway line near Highway 44, in the upper Pine Creek Watershed:

1. Conduct a systematic assessment of fish habitat in an important tributary to Pine Creek, Bogard Spring Creek.

2. Conduct an assessment of aquatic insect diversity and abundance throughout the upper watershed to compare with the results of studies designed to determine the *health* of other Sierra Nevada watersheds.
3. Conduct extensive quantitative fish samplings to compare with data collected in previous years.
4. Conduct a survey throughout the upper watershed to determine the suitability for ELRT spawning, as a step towards bringing ELRT back into the watershed.
5. Conduct a variety of public outreach activities to fully acquaint both CRMP members and the public with successes of the process.

## LETTERS OF SUPPORT

A. Letter of support from Pine Creek CRMP
B. Letter of support from California Department of Fish and Game
C. Letter of support from US Forest Service
D. Letter of support from Susanville Indian Rancheria
E. Letter of support from US Fish and Wildlife Service

## SNC PROJECT DELIVERABLES AND SCHEDULE

| DETAILED PROJECT DELIVERABLES | TIMELINE |
|---|---|
| Extensive assessments of stream habitat and fish distribution of Bogard Spring Creek to explain the habitat preference for each species. Furthermore, the most critical habitat for ELRT fishery restoration will be determined. | Summer 2009 |
| Watershed bioassessment, by systematically sampling fish and macroinvertebrates, and comparison with other Sierra Nevada watersheds. The ecological state of the watershed after years of restoration activities will be evaluated. | Summer 2009 and 2010 |
| Evaluation of stream substrate and physical variables to assess the quality and estimate the potential of the upper watershed for ELRT spawning. | Spring 2010 |
| Descriptive posters of watershed restoration efforts and project findings will be posted in the surrounding areas of Eagle Lake. | Spring 2010 |
| Field tour of Pine Creek watershed with Pine Creek CRMP members will be made available to inform Sierra Nevada residents, non-profits, and agency staff about the results of the first year of the study. | Summer 2010 |
| Field tours and local and regional workshops will be conducted to educate Pine Creek CRMP members, other Sierra Nevada residents, non-profits, and agency staff about the final results of the study. | Spring 2011 |
| Final report with results of the full 2-year study. | Spring 2011 |
| **FINAL PAYMENT/FINAL PAYMENT REQUEST** | **April 30, 2011** |

## SNC PROJECT COSTS

| PROJECT BUDGET CATEGORIES | TOTAL SNC FUNDING |
|---|---|
| Extensive assessments of stream habitat and fish distribution of Bogard Spring Creek | $47,318 |
| Watershed bioassessment, by systematically sampling fish and macroinvertebrates, and comparison with other Sierra Nevada watersheds. | 85,900 |
| Evaluation of stream substrate and physical variables. | 67,155 |
| Descriptive posters of watershed restoration efforts and project findings | 6,793 |
| Field tour of Pine Creek watershed | 2,773 |
| Field tours and local and regional workshops | 7,621 |
| Performance Reporting | Covered In-kind |
| **SNC GRANT TOTAL** | **$217,560** |